

WHAT IS CLAIMED IS:

1. An electronic control unit for a vehicle having equipment,
the control unit comprising:

a microcomputer for controlling the equipment;

5 a first power supply circuit that starts supplying the
microcomputer with operating power when a predetermined switch
signal is applied from an outside, and stops supply of the
operating power when the predetermined switch signal
disappears;

10 a timer for counting time after the switch signal
disappears, and for starting up the first power supply circuit
when the counted time reaches a predetermined time;

a volatile memory for storing control data to be used for
controlling the equipment;

15 a second power supply circuit for supplying the timer and
the volatile memory with operating power even after the switch
signal disappears; and

a nonvolatile memory for storing the control data stored
in the volatile memory,

20 wherein, when the counted time reaches the predetermined
time, the microcomputer starts operating with the operating
power supplied from the first power supply circuit, writes the
control data stored in the volatile memory into the nonvolatile
memory, stores the written data in the nonvolatile memory, and
25 thereafter stops the power supply from the second power supply
circuit to the volatile memory.

2. The electronic control unit according to Claim 1, wherein:
the volatile memory has a flag indicating whether the power supply from the second power supply circuit to the volatile memory has stopped; and

5 the microcomputer reads the control data from the nonvolatile memory and stores the read data in the volatile memory if the microcomputer determines on the basis of the state of the flag that the power supply to the volatile memory has stopped, when the microcomputer starts operating with the
10 operating power supplied from the first power supply circuit.

3. The electronic control unit according to Claim 1, wherein the microcomputer determines from the counted time or a power supply starting signal whether the microcomputer has started
15 operating because the switch signal has been applied or because the counted time has reached the predetermined time, when the microcomputer has started operating with the operating power supplied from the first power supply circuit.

20 4. The electronic control unit according to Claim 1, wherein the microcomputer determines whether a predetermined writing condition is met in terms of at least temperature and operating voltage and writes the control data into the nonvolatile memory if the writing condition is met, before the microcomputer writes
25 the control data into the nonvolatile memory.

5. The electronic control unit according to Claim 4, wherein:
the microcomputer determines, a predetermined number of
times, whether the writing condition is met, if the writing
condition is not met; and

5 the microcomputer stops writing the control data into the
nonvolatile memory as an occurrence of a writing condition error,
if the writing condition is not met even once.

6. The electronic control unit according to Claim 5, wherein
10 the microcomputer eases the writing condition, when the
microcomputer determines the predetermined number of times
whether the writing condition is met.

7. The electronic control unit according to Claim 5, wherein
15 the microcomputer issues an alarm about the writing condition
error when the switch signal is applied, if the writing condition
error occurs.

8. The electronic control unit according to Claim 1, wherein:

20 the microcomputer determines whether the control data
stored in the volatile memory has been written correctly into
the nonvolatile memory; and

the microcomputer maintains the power supply from the
second power supply circuit to the volatile memory; if the
25 microcomputer determines that the control data has not been
written correctly into the nonvolatile memory.

9. The electronic control unit according to Claim 8, wherein:
the microcomputer writes the control data a plurality of
times into the nonvolatile memory, if the microcomputer
determines that the control data has not been written correctly
5 into the nonvolatile memory; and

the microcomputer stops writing the control data into the
nonvolatile memory as an occurrence of a written data error,
if the control data cannot be written successfully even once
into the nonvolatile memory.

10. The electronic control unit according to Claim 9, wherein
the microcomputer issues an alarm about the written data error
when the switch signal is applied, if the written data error
occurs.

11. The electronic control unit according to Claim 1, wherein:
the microcomputer counts the frequency at which the switch
signal is applied; and

the microcomputer writes the control data into the
nonvolatile memory, if the control data has not been written
even once into the nonvolatile memory after the microcomputer
starts counting the frequency and until the counted frequency
reaches a predetermined value.